Amendments to the Claims

Please amend claims 1 and 16 as follows:

1. (Currently Amended) A telemetry system for enabling transfer of message data from an implantable medical device to an external device, comprising:

an antenna and a transmitter incorporated as part of the external device for transmitting a radio-frequency carrier signal to the implantable device;

an antenna incorporated as part of the implantable device which reflects the radio-frequency carrier signal without loading the transmitter of the external device;

a tuning circuit incorporated as part of the implantable device for adjusting the impedance of the implantable device antenna in a time varying manner so as to phase modulate the radio-frequency carrier signal reflected therefrom in accordance with the message data; and,

a receiver incorporated as part of the external device for receiving the phase modulated carrier signal reflected from the antenna of the implantable device and extracting the message data therefrom.

Inductance - the generation of electromotive force by varying magnetic flux

Increase the power demand

load - power output

loading - the addition of inductance to a transmission line

2. (Original) The system of claim 1 wherein the frequency of the radio-frequency carrier signal and the dimensions of the antennas are such that a significant portion of the radio-frequency energy emitted by the external device antenna and reflected by the implantable device antenna is far-field radiation.

3. (Previously Amended) The system of claim 1 further comprising a receiver incorporated as part of the implantable device for receiving a radio-frequency carrier modulated with digital data from the external device.

4. (Previously Amended) The system of claim 1 wherein the tuning circuit comprises a symbol encoder for encoding the message data into corresponding voltage level symbols that are used to adjust the impedance of the implantable device antenna in a time varying manner so that the radio-frequency carrier signal is reflected with a phase-shift corresponding to each symbol.

5. (Original) The system of claim 4 wherein the antenna tuning circuit further comprises a tank circuit with a voltage-controlled capacitance adjusted by the symbol encoder in accordance with the digital data signal.

6. (Previously Amended) The system of claim 5 wherein the voltage-controlled capacitance is a varactor diode.

B1

7. (Previously Amended) The system of claim 4 wherein the message data is encoded into binary symbols by the symbol encoder such that the reflected radio-frequency carrier is modulated with binary phase-shift keying.

8. (Previously Amended) The system of claim 4 wherein the message data is encoded into four symbols by the symbol encoder such that the reflected radio-frequency carrier is modulated with quadrature phase-shift keying.

9. (Previously Amended) The system of claim 4 wherein the external device receiver comprises a demodulator and a symbol decoder for recovering the message data from the reflected radio-frequency carrier signal.

10. (Previously Amended) The system of claim 9 wherein the demodulator is a synchronous demodulator.

11. (Previously Amended) The system of claim 10 wherein the external device generates a reference carrier signal that is correlated with the reflected radio-frequency signal by the synchronous demodulator.

12. (Previously Amended) The system of claim 9 wherein the implantable device differentially encodes the message data such that symbols are represented in the modulated carrier by the phase change from one symbol period to another.

13. (Original) The system of claim 12 wherein the demodulator of the external device receiver correlates the radio-frequency signal reflected from the implantable device with the same signal delayed by a symbol period.

14. (Previously Amended) The system of claim 13 wherein the tuning circuit phase modulates the radio-frequency carrier reflected from the implantable device with differential binary phase-shift keying.

15. (Previously Amended) The system of claim 13 wherein the tuning circuit phase modulates the radio-frequency carrier reflected from the implantable device with differential quadrature phase-shift keying.

16. (Currently Amended) A method for enabling data transfer from an implantable medical device to an external device, comprising:

transmitting a radio-frequency carrier signal from an antenna of the external device to an antenna of the implantable device which reflects the radio-frequency carrier signal without loading a transmitter of the external device ;

adjusting the impedance of the implantable device antenna in a time varying manner so as to phase modulate the radio-frequency carrier signal reflected therefrom in accordance with a digital data signal; and,

receiving the phase modulated carrier signal reflected from the implantable device antenna at the external device and extracting the digital data signal therefrom.

17. (Previously Amended) The method of claim 16 further comprising transmitting the radio-frequency carrier signal at a frequency such that a significant portion of the radio-frequency energy emitted by the external device antenna and reflected by the implantable device antenna is far-field radiation.

18. (Original) The method of claim 16 further comprising encoding the digital data signal into corresponding voltage level symbols and adjusting the impedance of the implantable device

antenna for a specified symbol period so that the radio-frequency carrier is reflected with a phase-shift corresponding to each symbol.

19. (Original) The method of claim 18 wherein the impedance of the implantable device antenna is adjusted by adjusting a voltage-controlled capacitance of a tank circuit connected to the antenna.

20. (Original) The method of claim 16 further comprising synchronously demodulating the signal received at the external device by correlating the signal reflected from the implantable device with a locally generated reference carrier signal.

21. (Original) The method of claim 20 further comprising periodically modulating the reflected radio-frequency carrier signal with alignment symbols having no phase shift in order for the external device receiver to generate a synchronized reference carrier signal.

22. (Original) The method of claim 16 further comprising differentially encoding the digital data at the implantable device such that symbols are represented in the modulated carrier by the phase change from one symbol period to another.

23. (Original) The method of claim 22 further comprising demodulating the signal received at the external device by correlating the signal reflected from the implantable device with the same signal delayed by a symbol period.

24. (Previously Added) The system of claim 11 wherein the implantable device, at specified times according to a predetermined communications protocol, modulates the reflected radio-frequency carrier signal with no phase shift in order to generate alignment symbols for use by the external device receiver in synchronizing the reference carrier signal to the reflected carrier signal.